MIDMARK®

Light User's Guide

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Intended Use

This operating light is intended for use by dental professionals as a light to provide illumination during dental examinations and procedures.

Model/Serial Number Location

ATTENTION!: Record model / serial number below (See Figure 1):

Model : _____

Serial #: _____

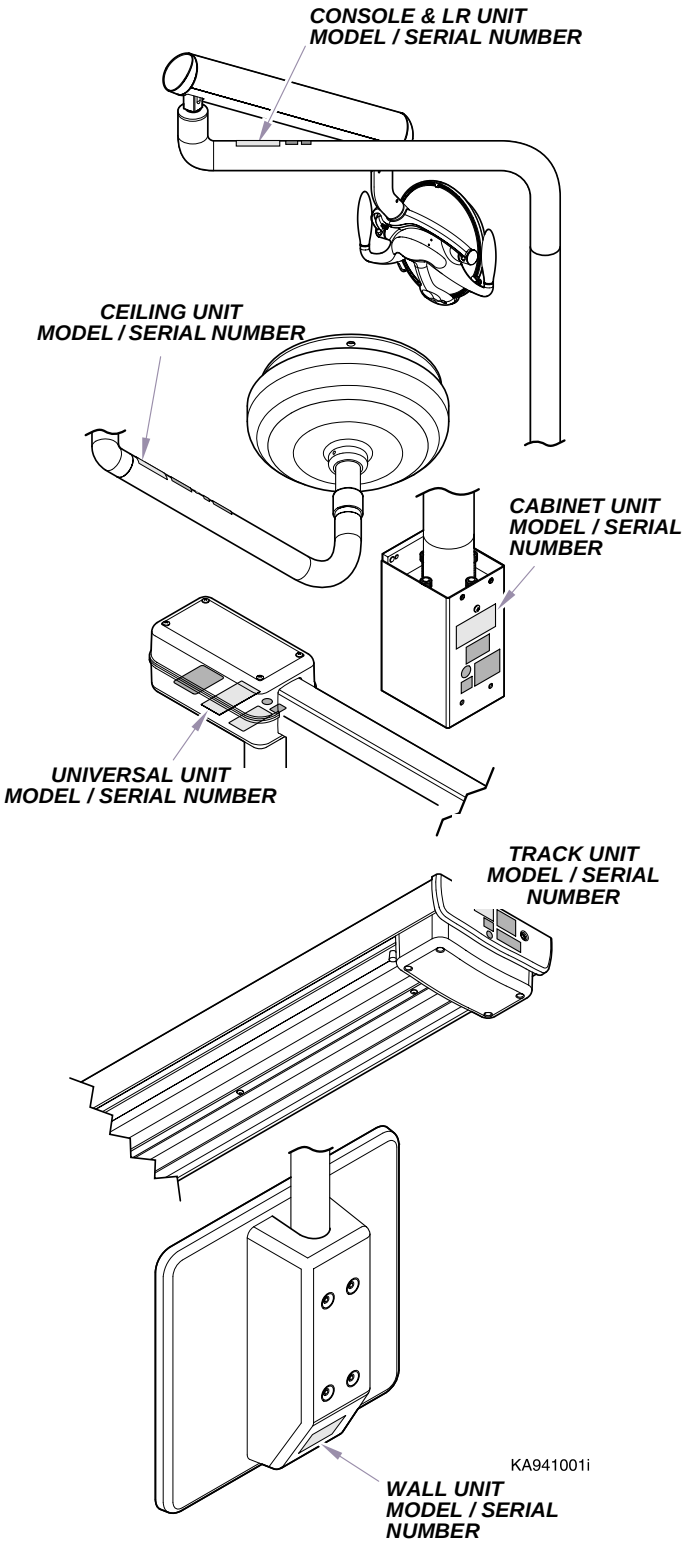
CONSOLE & LR UNIT MODEL / SERIAL NUMBER
CEILING UNIT MODEL / SERIAL NUMBER
CABINET UNIT MODEL / SERIAL NUMBER
UNIVERSAL UNIT MODEL / SERIAL NUMBER
TRACK UNIT MODEL / SERIAL NUMBER
KA941001i
WALL UNIT MODEL / SERIAL NUMBER

Figure 1

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Part Number: 003-1108-00 Rev. J (6/03)

Features

The Midmark dental operating light has . . .

- a fully integrated lighthead control panel mounted on front side of lighthead for easy access and use.
- exceptional light quality and shadow reduction.
- an AUTO ON / OFF feature which turns the lighthead ***on*** when lowered; then automatically turns ***off*** when lighthead is raised up.
- three axis' of rotation which allow precise and effortless positioning of the lighthead.
- a light beam focus adjustment which allows the user to easily adjust light beam pattern to his / her preference.

Operation

Turning Lighthead On and Off (Figure 2)

The **POWER button** allows you to toggle between three modes; ***STANDBY***, ***AUTO ON***, and ***ON***. A green indicator lamp will illuminate when you are in ***AUTO ON*** mode.

- When in ***STANDBY*** mode, lighthead is **off.**
- When in ***AUTO ON*** mode, lighthead remains **off** until lighthead is lowered toward patient; when lightarm is lowered below horizontal, lighthead automatically turns **on**. Then, when lightarm is raised back above horizontal, lighthead automatically turns **off**.
- When in ***ON*** mode, lighthead is **on** continuously, regardless of lightarm position.

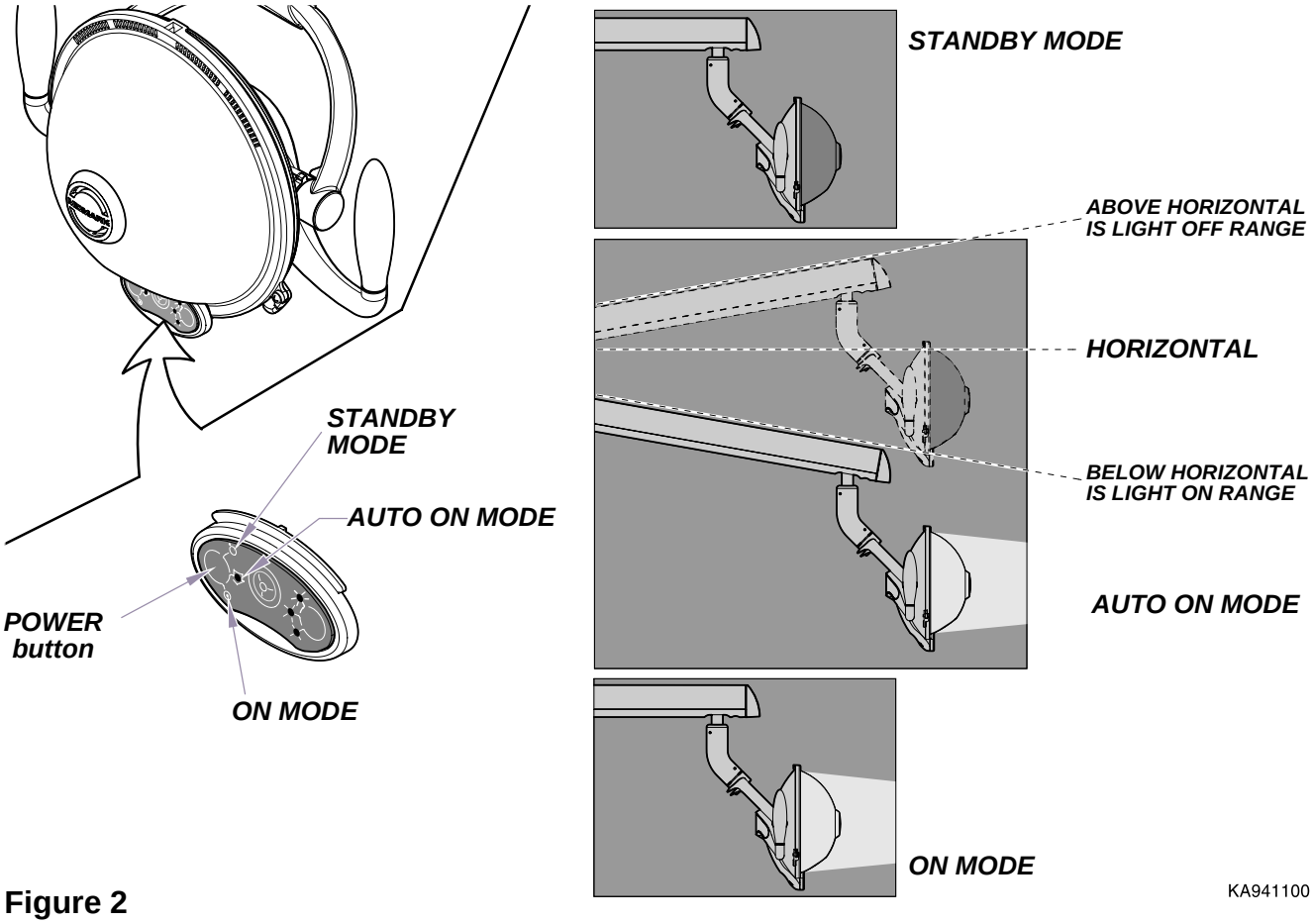

Figure 2

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Adjusting Light Intensity (Figure 3)

The **INTENSITY button** allows you to select ***HIGH, MEDIUM***, or ***LOW*** light beam intensity:

- When set to ***HIGH***, light pattern intensity will be 3300 foot candles (35,521 lux).
- When set to ***MEDIUM***, light pattern intensity will be 2500 foot candles (26,910 lux).
- When set to ***LOW***, light pattern intensity will be 1700 foot candles (18,299 lux).

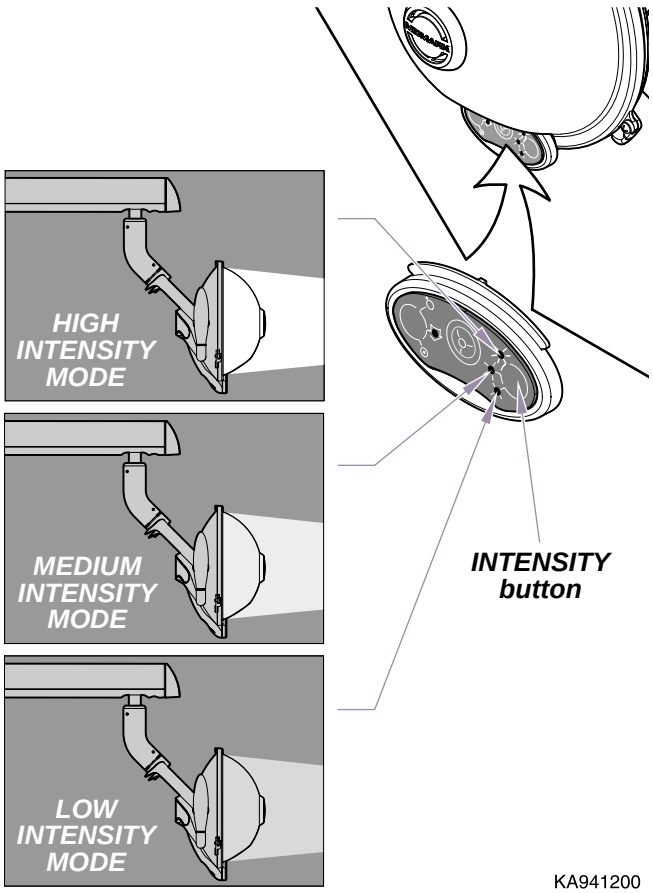

Figure 3

Using Composite Setting (Figure 4)

The light's composite intensity setting provides light for illuminating the oral cavity without prematurely curing composite material.

Use **COMPOSITE button** to switch between standard lighting and the composite light setting (composite light setting is noticeably dimmer than standard light setting). When set to ***COMPOSITE*** setting, light pattern intensity will be 700 foot candles (7,535 lux).

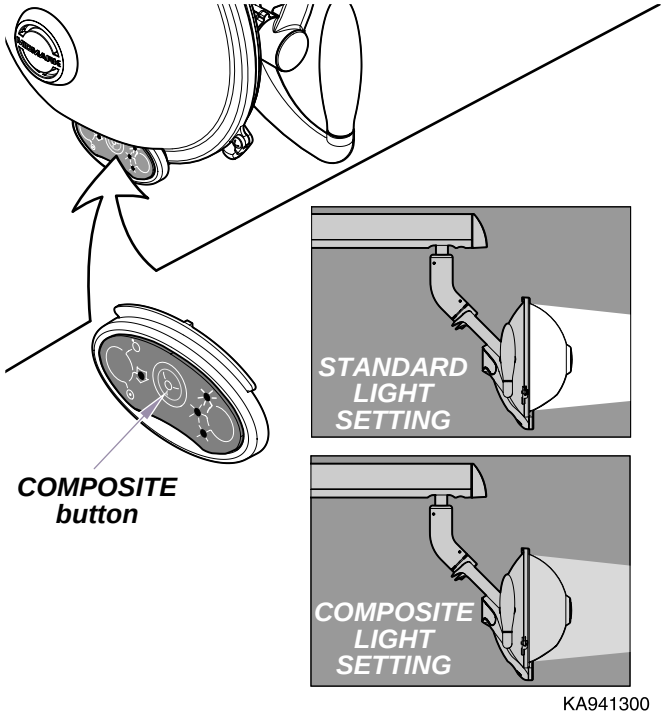

Figure 4

Positioning Lighthead

To see the range of motion for each axis of the light, refer to the illustrations in ***Specifications*** section of this manual.

Operator Maintenance

Bulb Replacement (Figure 5)

CAUTION

The bulb operates at extreme high temperatures; the bulb may be HOT! Allow bulb to cool for 5 minutes before removing. Failure to do so may result in burns to the hands. Also, move the lighthead away from the patient before attempting this procedure. Failure to do so could result in burns to, or contamination of the patient.

1) Turn lighthead **off** and allow bulb to cool for at least 5 minutes.

2) Rotate two **RELEASE LEVERS** up 1/4 turn, one on each side of lighthead, and then remove clear **SHIELD** from lighthead.

3) Remove **BULB** by pulling bulb straight out of lamp socket. Discard used bulb.

4) Get a new bulb; one spare bulb comes with the unit. To order new spare bulbs, refer to ***Replacement Parts*** section of this manual.

EQUIPMENT ALERT

Install the new bulb without removing its protective plastic cover. Do not touch bulb with bare hands - these bulbs are sensitive to body oils, which can create hot spots on the bulb glass, reducing the bulb life. If glass portion of bulb is accidentally handled, wipe with a clean, soft, lint-free cloth moistened with denatured alcohol and pat dry.

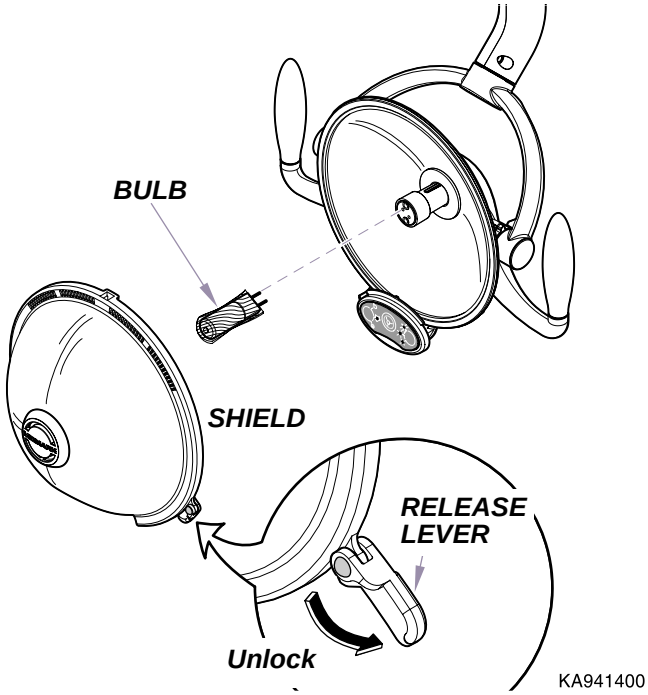

Figure 5

5) Using protective plastic cover, align contact pins of new bulb with socket holes and press bulb in firmly.

WARNING

Never operate light with plastic shield removed. The clear shield protects patient and doctor in case of bulb explosion. Failure to have plastic shield installed could result in injury to patient and doctor.

6) Position shield on lighthead. Secure shield in place by rotating two release levers down 1/4 turn.

Light Beam Focus Adjustment (Figure 6)

This adjustment affects the sharpness of the light pattern at a specified distance. The light's focus is factory preset for a distance of 27 in (68.6 cm) from the surface of faceplate to patient. However, the focus can be adjusted per users preference for any distance between 21 to 39 in. (53.3 to 99.0 cm).

To adjust light focus:

> **NOTE**
> The factory suggested setting is to adjust the focus at a range of 27 in. (68.6 cm). The light comes factory adjusted at this focus range.

1) Position **SHIELD** of light 21 to 39 in. (53.3 to 99.0 cm) from a target (wall, chair, or back) and turn **on** light.

2) Using a screwdriver, pry **BACK COVER** off of lighthead.

3) Using a 1/8 in. **ALLEN WRENCH** (provided), adjust **FOCUS SCREW** as necessary to achieve desired pattern. The suggested pattern is a 3 x 8 in. (8 x 20 cm) pattern, oval in shape, with feathered edges.

4) Reinstall back cover.

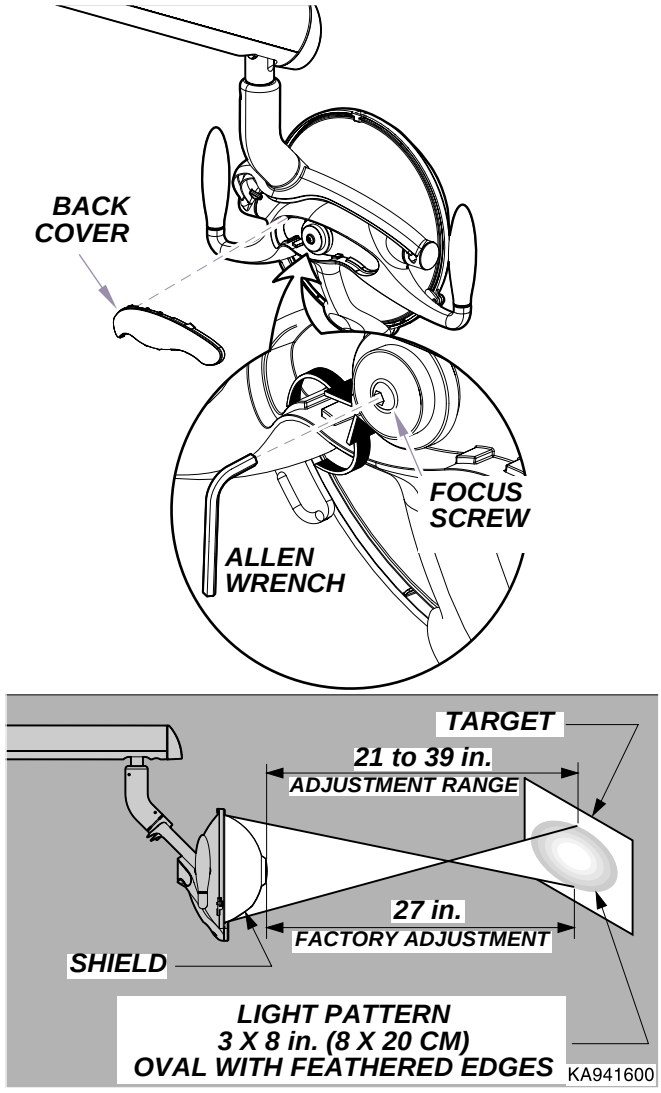

Figure 6

Lighthead Pivot Joint Tension Adjustments (Figures 7 and 8)

To adjust drag at lighthead pivot joint (Figure 7), use screwdriver to pry off **SCREW COVER**. Using 5/64 in. **ALLEN WRENCH** (provided with unit), loosen setscrew. Then, using screwdriver, adjust **TENSION SCREW** until desired drag effect in pivot joint is achieved. Retighten setscrew and reinstall screw cover on lighthead.

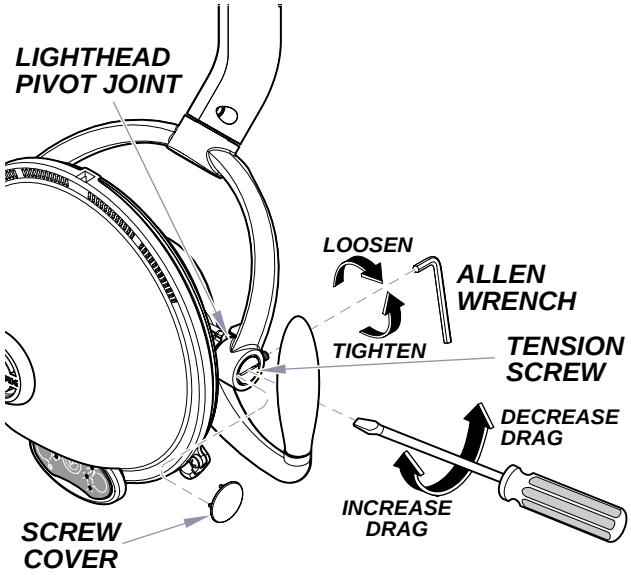

Figure 7

To adjust drag at yoke pivot joint (Figure 8), use 9/64 in. **ALLEN WRENCH** (provided with unit) to adjust yoke tension screw until desired drag effect in **YOKE PIVOT JOINT** is achieved. ***To adjust drag at arm pivot joint***, use 9/64 in. Allen Wrench (provided with unit) to adjust arm tension screw until desired drag effect in **ARM PIVOT JOINT** is achieved.

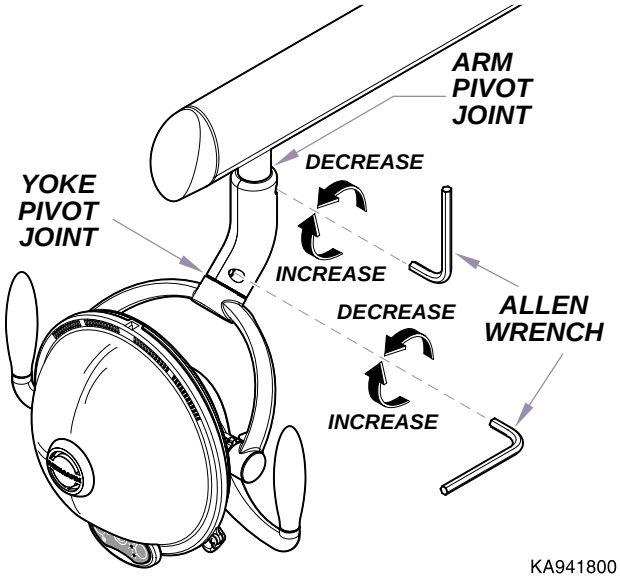

Figure 8

Light Arm Spring Tension Adjustment (Figure 9)

This adjustment should be made when light arm drifts downward on its own ***or*** feels stiff and is difficult to move:

1) Remove **SCREW** and **END CAP** from end of light arm. If track, wall, or cabinet unit, remove other end cap also.

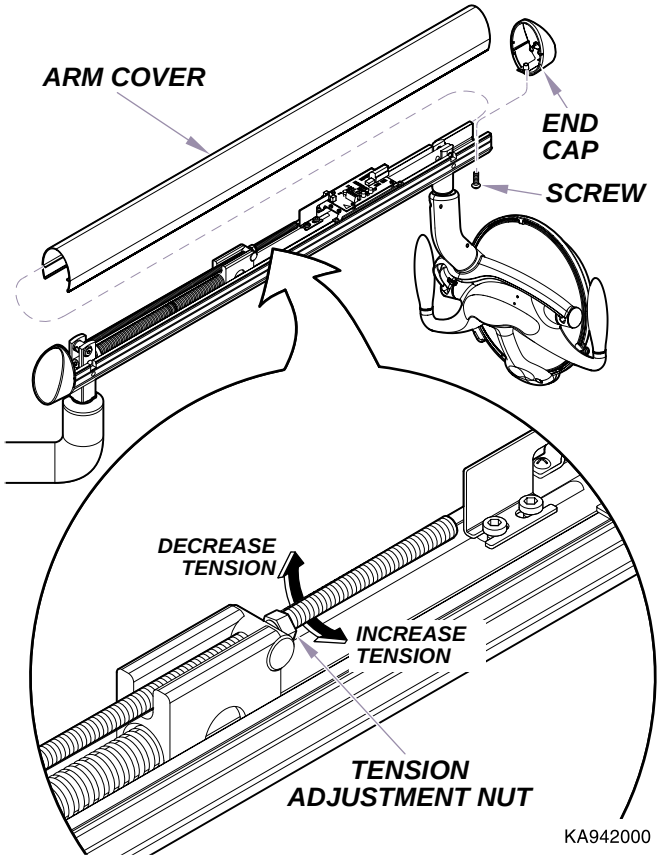

Figure 9

2) Slide **ARM COVER** off of light arm.

3) Using an 1/2 in. open end wrench, adjust **TENSION ADJUSTMENT NUT** to increase or decrease spring tension.

4) Raise and lower light arm and then position light arm in a horizontal position and observe to verify that light arm is not stiff and is easy to use, yet will not drift downward by itself. Repeat step 3 as necessary.

5) Slide arm cover on light arm.

6) Install end cap on end of arm and secure with screw. If track, wall, or cabinet unit, install other end cap also.

AUTO ON Mode Set Point Adjustment (Figure 10)

This adjustment allows the user to set desired height (when arm is being lowered) of light arm at which ***AUTO ON*** mode is activated (light automatically turns on):

1) Remove screw (**A**) and **END CAP** from light arm. If track, wall, or cabinet unit, remove other end cap also.

2) Slide **ARM COVER** off of light arm.

3) Switch light to ***AUTO ON*** mode.

NOTE
The light arm is factory preset to activate when lowered below horizontal - this is the recommended setting.

4) Position light arm at desired height for ***AUTO ON*** mode to activate; hold light arm in this position during next step.

5) Loosen two screws (B) and slide **TRIGGER** all the way ***out***; then slowly slide trigger ***in*** until lighthead turns on (at **SET POINT LINE**). Secure trigger in this position by tightening two screws (**B**).

6) Raise and lower light arm to verify set point of ***AUTO ON*** mode is set as desired. Repeat steps 4 and 5 as necessary.

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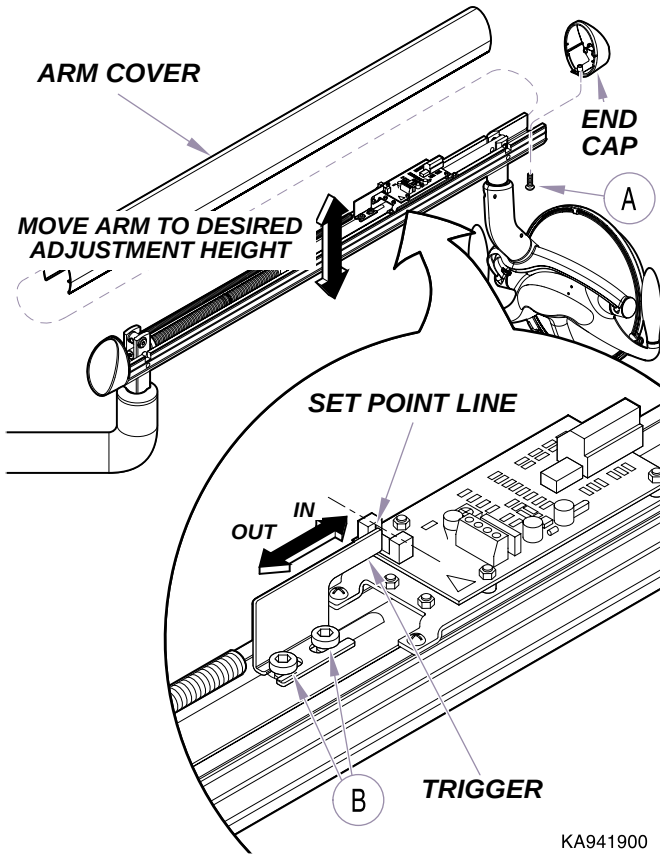


Figure 10

7) Slide arm cover on light arm.

8) Install end cap on end of arm and secure with screw (A). If track, wall, or cabinet unit, install other end cap also.

Console & LR Lights Circuit Breaker Reset / Fuse Replacement (Figure 11)

There is a circuit breaker and two fuses to check; the transformer output circuit breaker which can be reset and two transformer input fuses which must be replaced if blown.

EQUIPMENT ALERT
Do not just reset circuit breaker or replace blown fuse. First, determine reason that circuit breaker tripped or fuse blew. Failure to do so could result in damage to equipment.

NOTE
The cover on the square junction box (shown) is secured with four thumbscrews. Styled junction box covers are not secured.

1) Remove **JUNCTION BOX COVER** from base.

2) Unplug universal power supply power cord from outlet receptacle.

3) Check position of white **RESET BUTTON** If reset button is flush, this fuse is not tripped. If reset button is protruding, press the reset button to reset the circuit breaker.

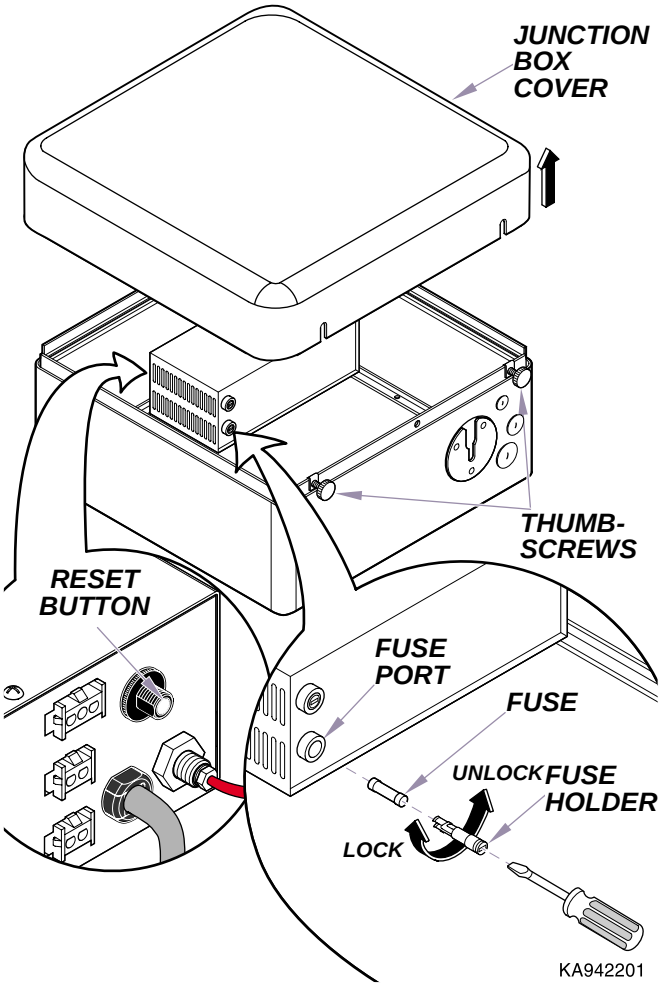


Figure 11

4) Using a screwdriver, gently depress **FUSE HOLDER** and rotate 1/4 turn to left. Pull fuse holder from **FUSE PORT**. Repeat step for remaining fuse.

5) Inspect **FUSE(s)**. If fuse is discolored, blackened, has burnt / hot look, or fuse element is burnt through; replace fuse. (Refer to ***Replacement Parts*** or ***Specifications*** section of this manual to order a fuse from your dealer).

6) Insert fuse holder into fuse port. Using a screwdriver, gently depress fuse holder and rotate 1/4 turn to right. Repeat step for remaining fuse.

7) Install junction box cover on base.

Wall / Cabinet Lights Fuse Replacement (Figure 12)

EQUIPMENT ALERT
Do not just reset circuit breaker or replace blown fuse. First, determine reason that circuit breaker tripped or fuse blew. Failure to do so could result in damage to equipment.

1) Wall units only, remove four **SCREWS** and **TRANSFORMER COVER**.

2) With a small slotted screwdriver, push in on **FUSE HOLDER** and rotate it 1/4 turn in the counterclockwise direction; then remove fuse holder.

3) Remove **FUSE**(s).

4) Inspect fuse(s). If fuse is discolored, blackened, has burnt or hot look, or fuse element is burnt through, fuse must be replaced (Refer to ***Replacement Parts*** or ***Specifications*** section of this manual to order a fuse from your dealer).

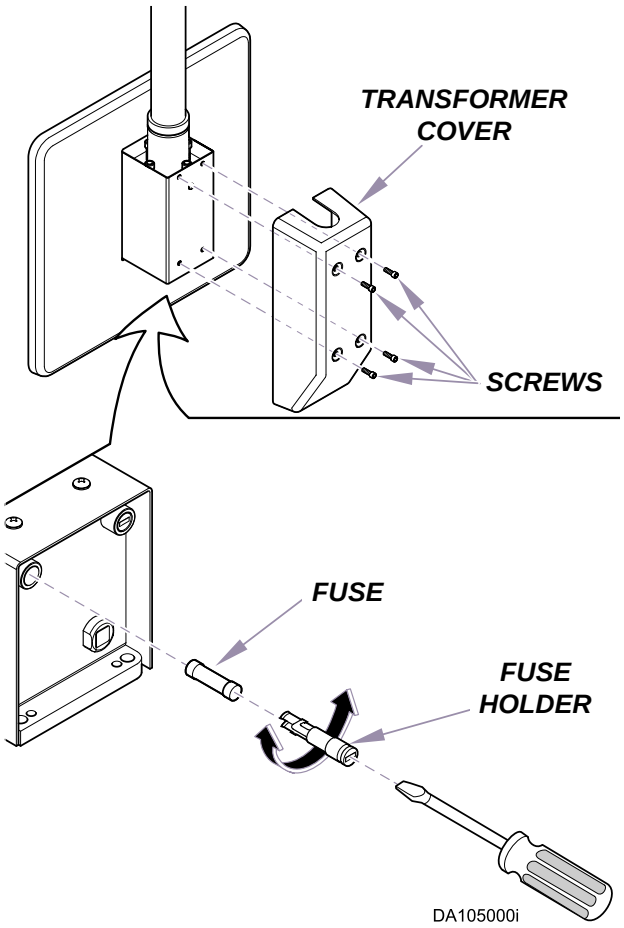


Figure 12

5) Insert new fuse into fuse holder.

6) Simultaneously push fuse cap into fuse holder and rotate it 1/4 turn in clockwise direction to secure it.

7) Install transformer cover on mount assembly and secure with four screws.

Ceiling, Track, & Universal Lights Fuse Replacement

These units have internal fuses which require the removal of covers to change. Midmark recommends calling an authorized service technician to repair the unit.

Infection Control / Cleaning (Figure 13)

EQUIPMENT ALERT
Do not use phenolics, Glutaraldehyde, or Iodophor to clean the unit. These chemicals are too harsh and will eventually damage the plastic and painted components of the unit. Also, do not use "strong" or "full strength" solutions (must be less than 1%) of alcohol or bleach to clean the unit; these solutions tend to discolor plastic components over time.

Touch Surfaces (controls and handles) - Use barrier protection between patients. At end of clinical-day, wipe touch surfaces with a mild soap and water solution on a lint-free cloth; then disinfect using a Quaternary disinfectant.

General Plastic Surfaces - Wipe periodically using a mild soap and water solution on a lint-free cloth. Wring excess solution from lint-free cloth before wiping. Disinfect as necessary using a Quaternary disinfectant.

General Painted Surfaces - Wipe periodically with a mild soap and water solution on a lint-free cloth. Wring excess solution from lint-free cloth before wiping. Disinfect as necessary using a Quaternary disinfectant.

Shield and reflector - Wipe ***outside*** of faceplate periodically with a mild soap and water solution on a lint-free cloth. Wring excess solution from lint-free cloth before wiping. Disinfect as necessary using a Quaternary disinfectant.

EQUIPMENT ALERT
Do not use an abrasive cloth or cleaners on surface of reflector. Also, clean gently; do not rub reflector with excessive pressure. This could result in damage or discoloration of reflector, reducing effectiveness of light output.

When dust or spots on ***inside surface*** of **SHIELD** or **REFLECTOR** begin to affect the efficiency of light output, clean as follows: Allow lighthead to cool, rotate two **RELEASE LEVERS** up 1/4 turn and then remove shield from lighthead. Using lint-free cloth made damp with a mild soap and water solution, gently clean inside of shield and reflector. Ensure no residue remains on surfaces of reflector or shield. Reinstall shield on lighthead and secure by rotating two release levers down 1/4 turn.

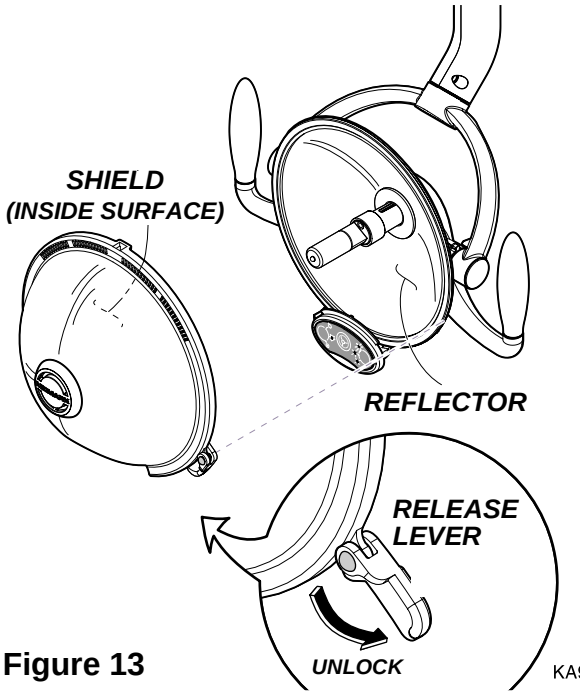
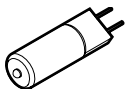


Figure 13

Replacement Parts

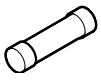
The following parts can be purchased from your dealer:

Replacement Bulb
Part#: 121720

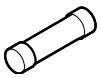


Replacement Shield
Part# 029-2378-00

Replacement Fuse,
Console & LR Lights
Part# 015-0346-01



Replacement Fuse,
Wall / Cabinet Lights
Part# 015-0346-00



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Specifications

NOTE
Refer to Figures 14 thru 20 for range of motion and dimensional information for specific light models.

Bulb Type.....24 V, 150 W Quartz, Xenon Halogen, Extended Life
Color Temperature .....5000^{o} K +/- 500^{o} K
Light Intensity:
Low Setting..... 1700 foot candles (18,299 lux)
Medium Setting..... 2500 foot candles (26,910 lux)
High Setting ..... 3300 foot candles (35,521 lux)
Composite Setting..... 700 footcandles (7,535 lux)
Light Pattern (Suggested) .....3 x 8 in. (8 x 20 cm) pattern, oval in shape, with feathered edges at 27 in. (68.6 cm).

Electrical Rating (300 W Power Supply):
115 VAC Unit.....115 VAC +/-10%, 3A, 50/60 Hz
230 VAC Unit.....230 VAC +/-10%, 1.5A, 50/60 Hz
Light Unit .....18.5 VAC +/-10%, 5.5 A, 50/60 Hz
Replacement Fuse:
Console & LR w/ J-Box ..... Type T, 4A, 250V, 5x20mm,
Wall / Cabinet / Ceiling.....1/4 x 1 1/4, (3AG) 1.5 amp Type T (Time Delay), 250 VAC

Classifications..... Class 1, Type B Applied Part, Ordinary Equipment, Intermittent Operation
Certifications..... UL-2601, CAN/CSA-C22.2 No. 601.1
Midmark Track Light..... U.S. Patent No. 6,568,836

Equipment not suitable for use in the pressence of a flammable anaesthetic mixture with air, oxygen or nitrous oxide.

RANGES OF MOTION - CONSOLE VERSION

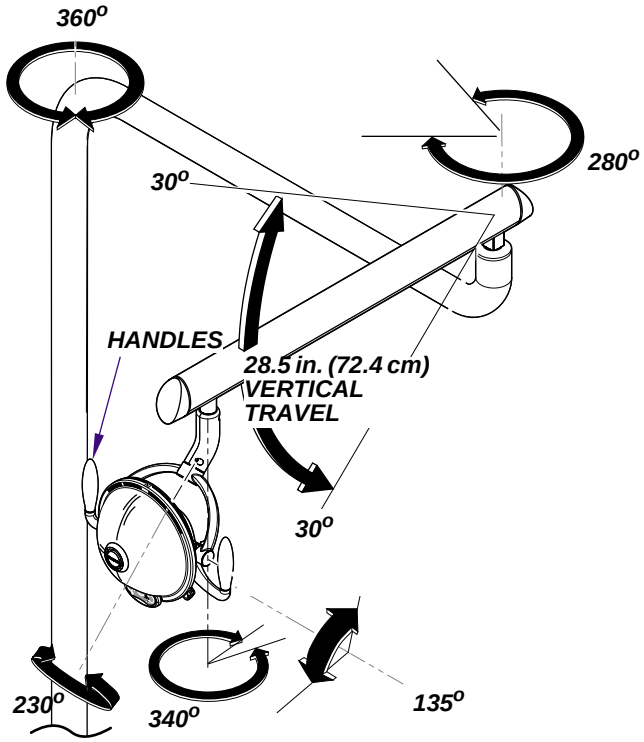
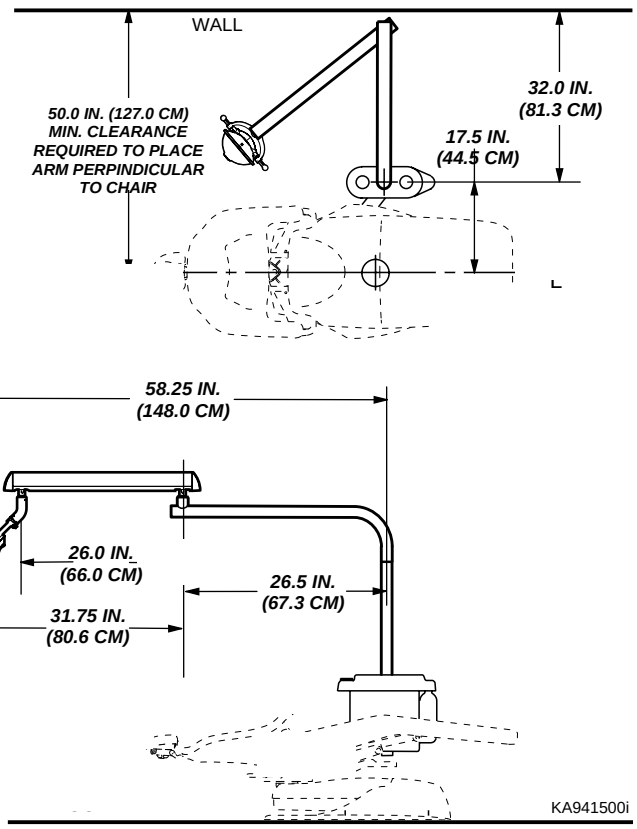
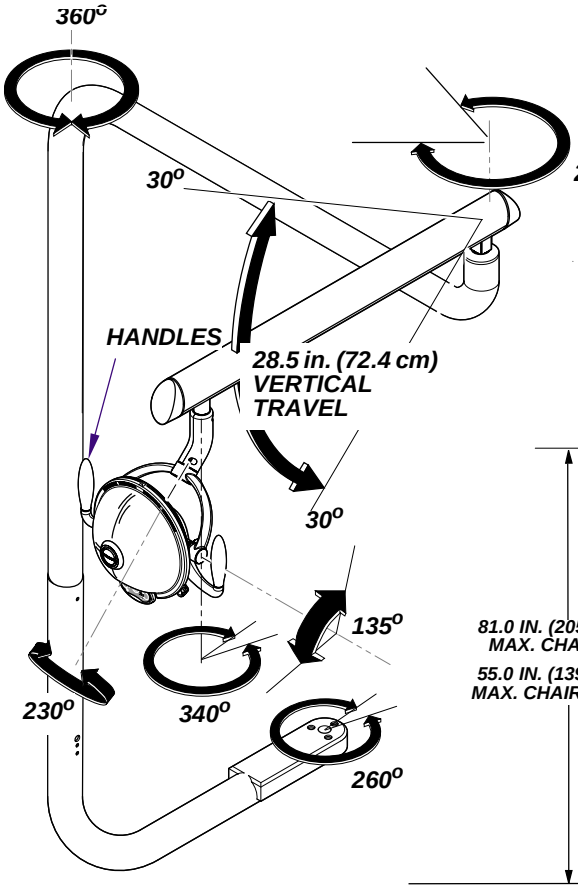


Figure 14

DIMENSIONS - CONSOLE VERSION



RANGES OF MOTION - LR VERSION



DIMENSIONS - LR VERSION

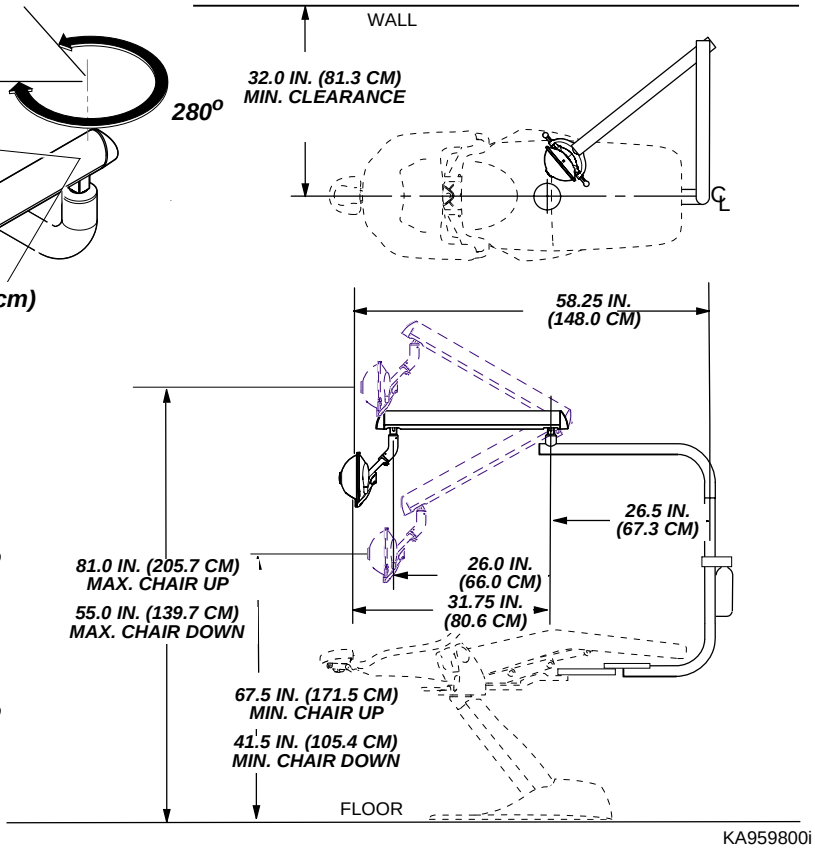


Figure 15

DIMENSIONS - CEILING VERSION

RANGES OF MOTION - CEILING VERSION

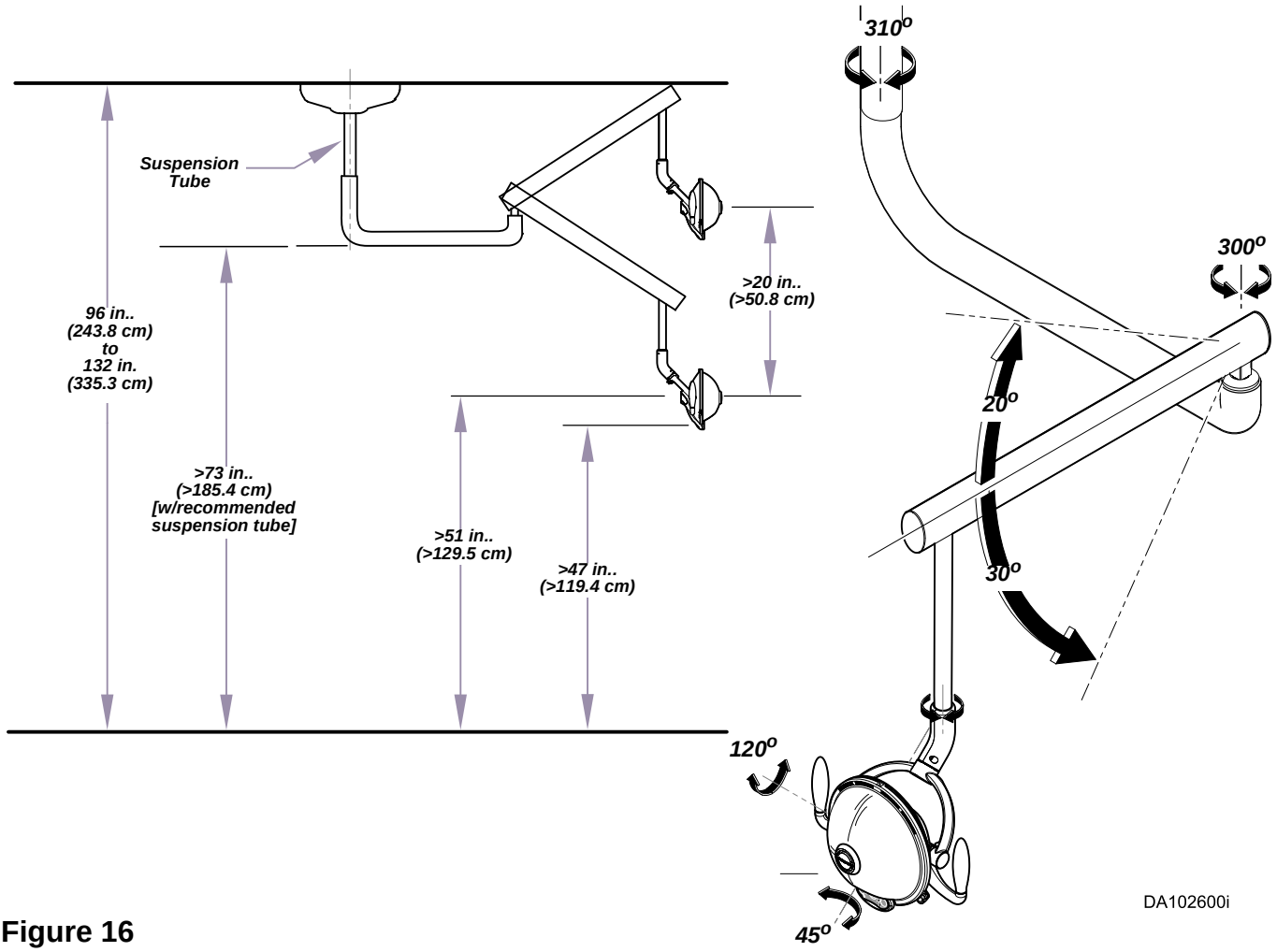


Figure 16

DIMENSIONS - TRACK VERSION

RANGES OF MOTION - TRACK VERSION

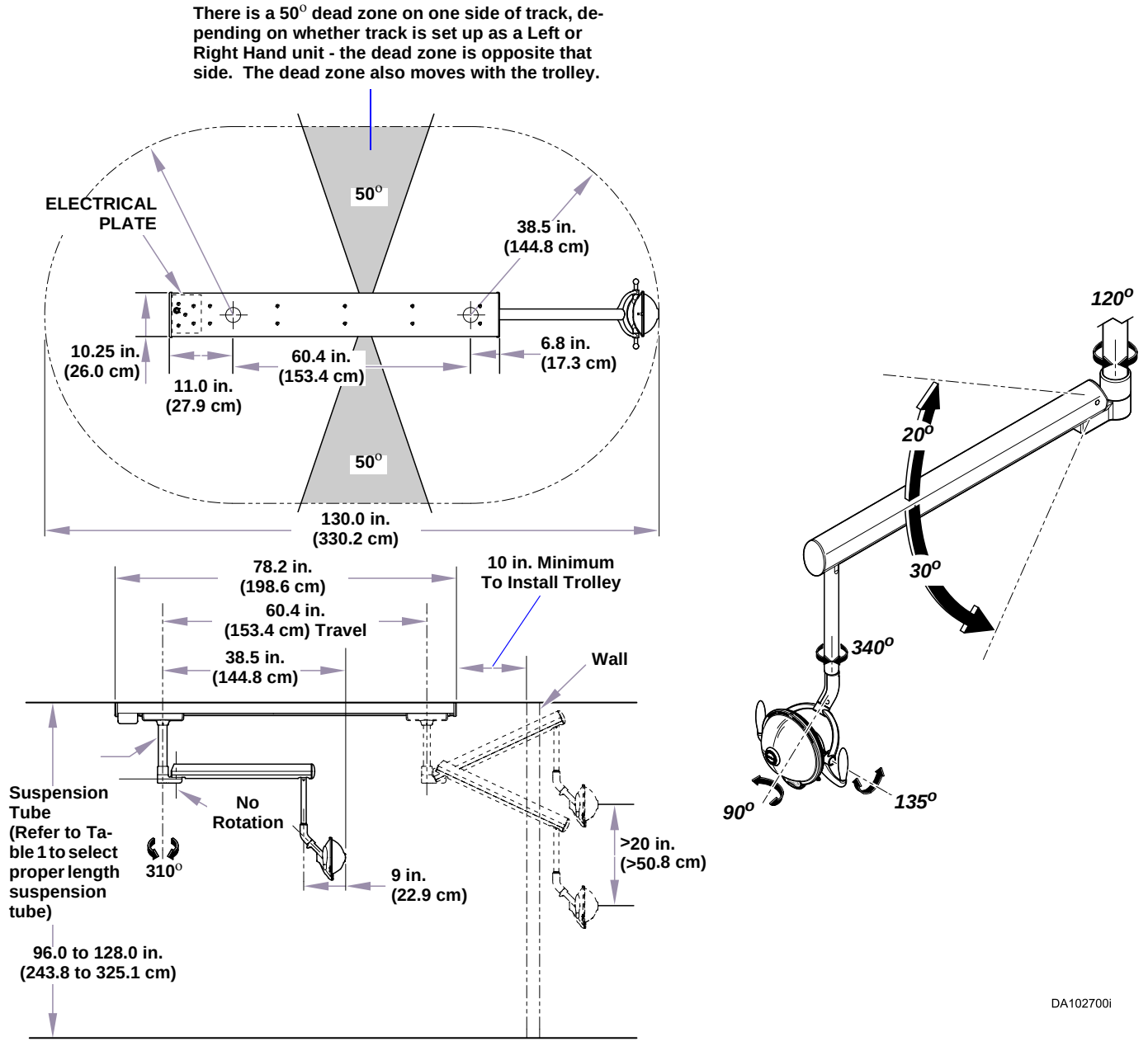
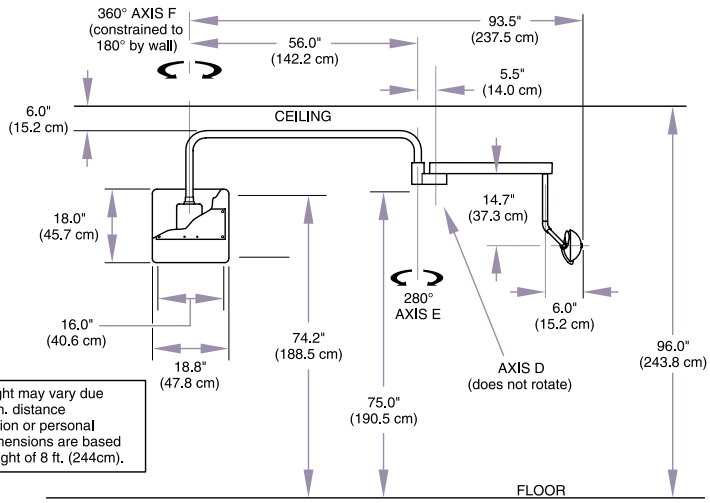

There is a 50° dead zone on one side of track, depending on whether track is set up as a Left or Right Hand unit - the dead zone is opposite that side. The dead zone also moves with the trolley.
50°
ELECTRICAL PLATE
38.5 in. (144.8 cm)
10.25 in. (26.0 cm)
11.0 in. (27.9 cm)
60.4 in. (153.4 cm)
6.8 in. (17.3 cm)
50°
130.0 in. (330.2 cm)
78.2 in. (198.6 cm)
10 in. Minimum To Install Trolley
60.4 in. (153.4 cm) Travel
38.5 in. (144.8 cm)
Wall
Suspension Tube (Refer to Table 1 to select proper length suspension tube)
No Rotation
310°
9 in. (22.9 cm)
>20 in. (>50.8 cm)
96.0 to 128.0 in. (243.8 to 325.1 cm)
120°
20°
30°
340°
90°
135°
DA102700i

Figure 17

DIMENSIONS - WALL VERSION



Recommended height may vary due to 6 in. (15.2cm) min. distance required for installation or personal preferences. All dimensions are based on a min. ceiling height of 8 ft. (244cm).

RANGES OF MOTION - WALL VERSION

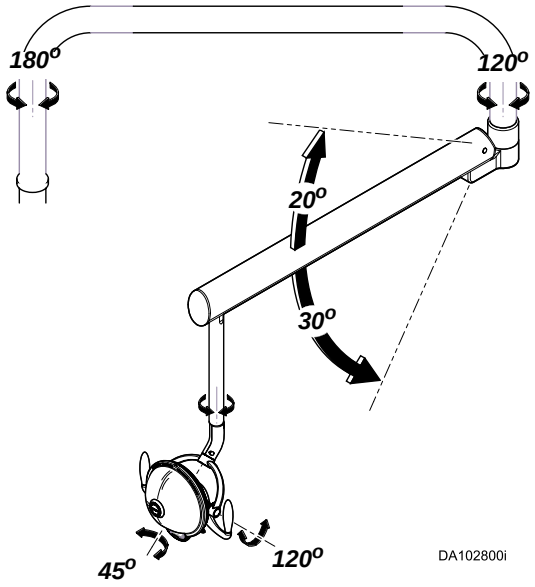
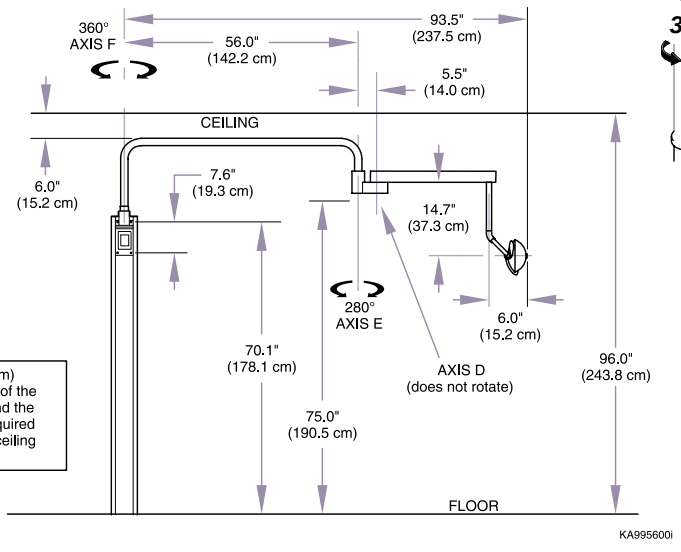


Figure 18

DIMENSIONS - CABINET VERSION



Recommended min. 8 ft. (244cm) ceiling height due to the height of the central free standing cabinet and the 6 in. (15.2cm) min. distance required between the light arm and the ceiling for installation.

RANGES OF MOTION - CABINET VERSION

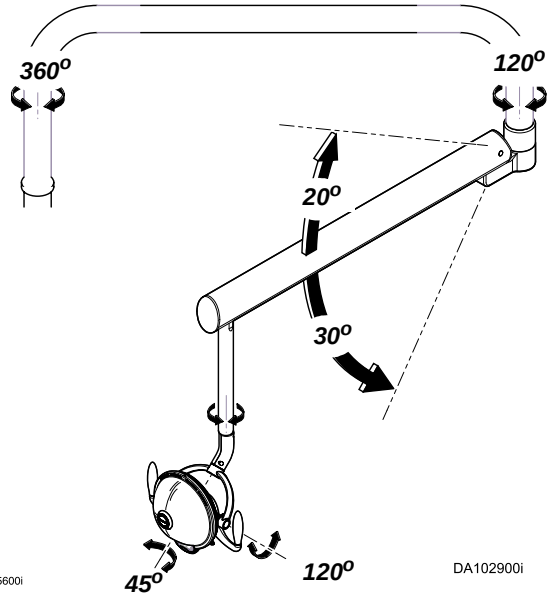
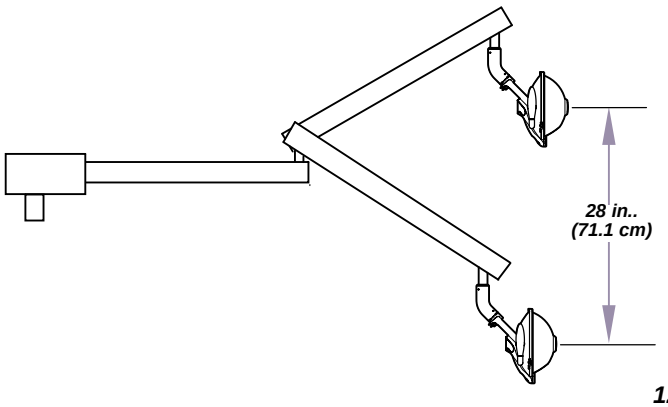


Figure 19

DIMENSIONS - UNIVERSAL VERSION



RANGES OF MOTION - UNIVERSAL VERSION

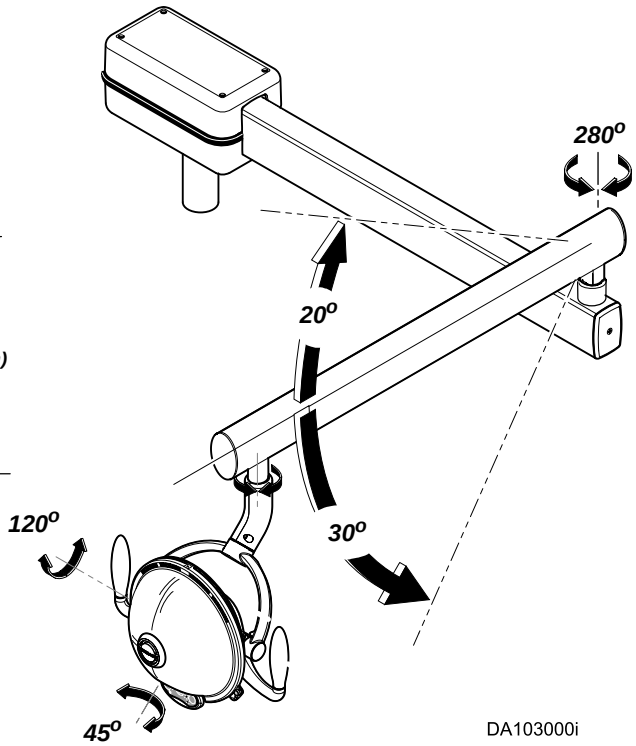


Figure 20

DECLARATION OF CONFORMITY

MIDMARK CORPORATION

Midmark Corporation declares that Dental Lights 153584, 153585, 153637-001, 153638-001, 153639-001, 153640-001, 153641-001, 153656-001, & 153673-001 conform to the applicable requirements of the Medical Device Directive 93/42/EEC, Annex VII.

Serial Numbers: NW1000, PS1000, PT1000, PV1000, PW1000, PX1000, PY1000, RE1000 to present.

Quality Assurance Manager

Gene Harshbarger
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MIDMARK®

General Information

Electromagnetic Interference

Midmark dental operatory components are designed and built to minimize electromagnetic interference with other devices. However, if interference is noticed between another device and this operatory, remove interfering device from room or plug product into an isolated circuit.

Symbols & Notes

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. The DANGER symbol is limited to the most extreme situations.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

EQUIPMENT ALERT

Indicates an imminently or potentially hazardous situation which, if not avoided, will or may result in serious, moderate, or minor equipment damage.

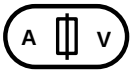
NOTE

Amplifies an operating procedure, practice, or condition.

Type B, Applied Part

Consult operator's manual for important information.

Dangerous voltage / shock hazard.

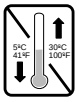


Fuse rating specification

Protective earth ground

Fragile

Proper shipping orientation



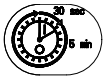
Minimum and maximum storage temperatures

Keep dry

Hot surface

ON

STANDBY



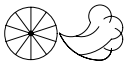
Duty cycle: (motor run time 30 sec. on, 5 min. off).

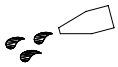
Cup Fill water flow adjustment.

Bowl Flush water flow adjustment

"City" water

Self-contained (distilled) water


Handpiece drive air adjustment

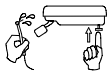

Handpiece/Syringe coolant water flow adjustment

Handpiece coolant air adjustment / Air Quick Disconnect

Water Quick Disconnect

Unlocked (Chair rotation)

Locked (Chair rotation)


Handpiece flush button
(***Note***: Remove handpiece from station; then remove handpiece from tubing connector).

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